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New species of *Humicola* and *Endophragmiella* from China

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Abstract —Three new species, *Humicola jilongensis, Humicola shannanensis* and *Endophragmiella zhangmuensis,* are described and illustrated from soil in China. The type specimens (dried cultures) and living cultures are deposited in the Herbarium of Shandong Agricultural University, Plant Pathology (HSAUP). Isotypes are kept in the Herbarium of Institute of Microbiology, Academia Sinica (HMAS).

Key words — dematiaceous hyphomycetes, soil fungi, taxonomy

Introduction

During the course of a survey of soil dematiaceous hyphomycetes in China, several unusual species of *Humicola* and *Endophragmiella* were collected. Two *Humicola* and one *Endophragmiella* species are described and illustrated as new. The genus *Humicola* was established by Traaen (1914) and is characterized by possession of micronematous or semi-macronematous conidiophores, which are cylindric or slightly inflated. The conidiogenous cells swell apically to form globose to ovoid aleuriospores. Of the 66 taxa listed by Index Fungorum (2012), many are infraspecific, and Seifert et al. (2011) estimate that the genus may contain only 20 valid species. *Endophragmiella* was erected by Sutton (1973) with *E. pallescens* as the type species. The genus, which was emended by Hughes (1979), is characterized by solitary, acrogenous, septate conidia seceding rhexolytically from monoblastic, integrated, terminal, determinate or percurrently proliferating conidiogenous cells. More than 80 species are recorded in this genus (Index Fungorum 2012).

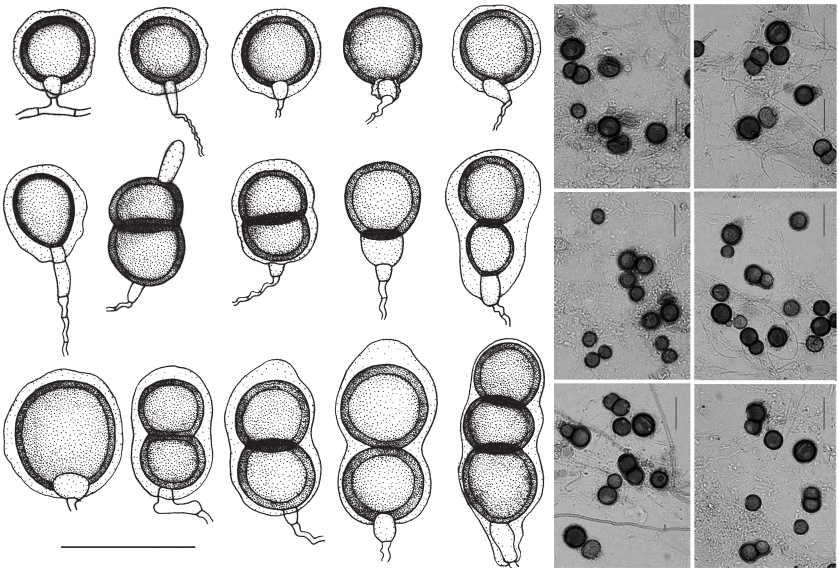

Fig. 1. *Humicola jilongensis* (ex holotype).
Conidia, conidiophores and conidiogenous cells. (Bars = 25 μm).

Humicola jilongensis Y.M. Wu & T.Y. Zhang, **sp. nov.** Fig. 1

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Differs from *H. globosa* and *H. indica* by its larger conidia with numerous melanin granules giving a rough appearance to the conidia.

Type: China, Tibet: Jilong, from a mountain soil, altitude 4550 m, 20 Sept. 2007, Y.M. Wu (**Holotype** HSAUP II$_{07}$1485; **isotype** HMAS 196260).

Etymology: in reference to the type locality.

Colonies on PDA at 26°C for 7 days 3–5 cm diam., effuse, velvety, brown to dark brown. Mycelium superficial or immersed: hyphae branched, septate, smooth, subhyaline to light brown, 2–3 μm wide. Conidiophores subhyaline to light brown, mononematous, septate, smooth, 3–7 μm wide. Conidia globose, solitary or forming short chains, golden-yellow, thick-walled, 15–24 (commonly 19) μm in diameter, covered by numerous melanin granules giving the conidial surface a rough appearance. Chlamydospores intercalary, globose. Phialospores not seen.

Comments –Morphologically, *H. jilongensis* resembles *H. globosa* De Bert. (De Bertoldi 1976) and *H. indica* S.C. Agarwal (Agarwal 1983; nom. illegit., non Haware & Pavgi 1971) but its conidia are larger than those of *H. globosa* (12–13 μm) or *H. indica* (8–10 μm). In addition, *H. jilongensis* conidia are covered by

numerous melanin granules giving the conidial surface a rough appearance, while the conidia of *H. indica* are slightly roughened and those of *H. globosa* are smooth.

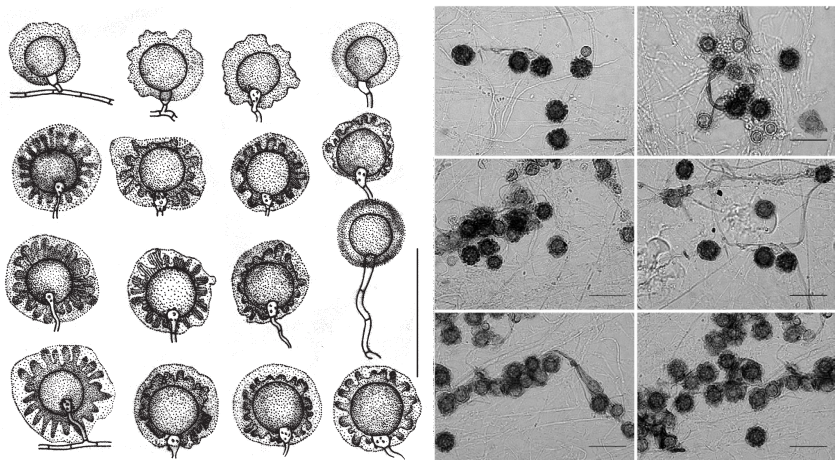

Fig. 2. *Humicola shannanensis* (ex holotype).
Conidia, conidiophores and conidiogenous cells. (Bars = 25 μm).

Humicola shannanensis Y.M. Wu & T.Y. Zhang, **sp. nov.** Fig. 2

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Differs from *Humicola lutea* by its verrucose conidia.

Type: China, Tibet: Shannan, from a grassland soil, altitude 3850 m, 28 Jun. 2007, Y.M. Wu (**Holotype** HSAUP II $_{07}$0597; **isotype** HMAS 196262).

Etymology: in reference to the type locality.

Colonies on PDA at 26°C for 7 days 2–3 cm diam., effuse, velvety, greyish brown to dark brown. Mycelium superficial and immersed: hyphae branched, septate, smooth, subhyaline to light brown, 1–3 μm wide. Conidiophores subhyaline, mononematous, septate, verrucose above, 3–5 μm wide. Conidia solitary, apical and lateral, globose, verrucose, golden-yellow, 8–10 (commonly 9) μm in diameter, thin-walled, surrounded by many melanin granules, forming a pile or coat (3–5 μm) thick. Phialospores not seen.

Comments –*Humicola shannanensis* is similar to *H. lutea* De Bert. (De Bertoldi 1976) in conidium size, but *H. lutea* has smooth conidia.

Endophragmiella zhangmuensis Y.M. Wu & T.Y. Zhang, **sp. nov**. Fig. 3

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Differs from *Endophragmiella theobromae* by its smaller, 1-septate conidia, and from *E. ovoidea* by its narrower conidia.

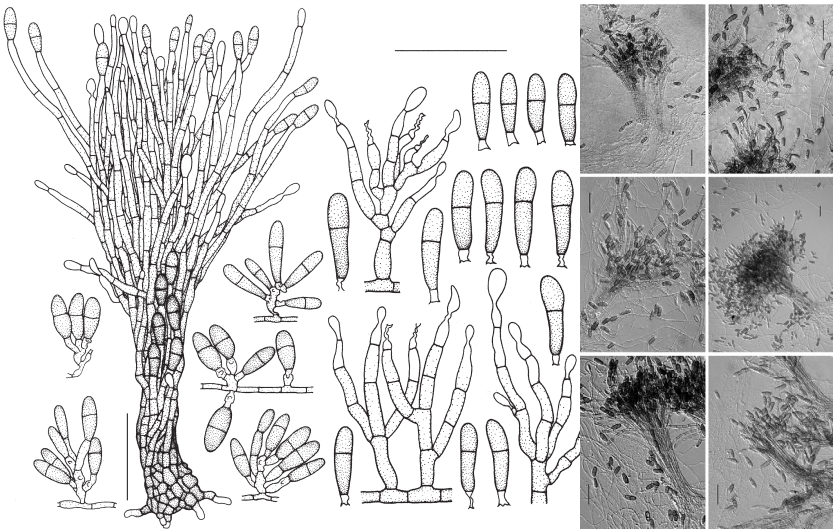

Fig. 3. *Endophragmiella zhangmuensis* (ex holotype).
Conidia, conidiophores and conidiogenous cells. (Bars = 25 μm).

Type: China, Tibet: Zhangmu, from a grassland soil, altitude 2250 m, 14 Sept. 2007, Y.M. Wu (**Holotype** HSAUP II $_{07}$1249; **isotype** HMAS 196263).

Etymology: in reference to the type locality.

Colonies on PDA at 25°C for 7 days 3–5 cm diam., effuse, hairy, dark blackish brown to black. Mycelium superficial and immersed: hyphae branched, septate, pale brown, smooth, 2–4 μm wide. Conidiophores macronematous, synnematous or mononematous, erect, straight or flexuous, smooth, septate, light brown, paler towards the apex, 40–200 × 3–5 μm. Conidiogenous cells monoblastic, integrated, terminal, percurrent, cylindrical, tapered to a truncate apex. Conidia mostly clavate, smooth, 1-septate, pale brown, with a small and protuberant thin-walled peg at the base, 15–20 × 3–5 μm.

Comments – In conidial shape, *E. zhangmuensis* resembles *E. theobromae* M.B. Ellis (Ellis 1976) and *E. ovoidea* P.M. Kirk (Kirk 1981), which differ in conidial dimensions (16–30 × 8–11 μm in *E. theobromae* and 14–16 × 5.5–6.5 μm in *E. ovoidea*). In addition, the conidia of *E. theobromae* are 2–3-septate while those of *E. ovoidea* and *E. zhangmuensis* are 1-septate.

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